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**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Paper No. 15



Application Number: 09/623,681
Filing Date: September 07, 2000
Appellant(s): FISHER ET AL.

Stanley Spooner
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed December 3, 2003.

***(1) Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

*(2) Related Appeals and Interferences*

The brief contains a statement identifying a related appeal, but the reference was actually to a previously filed Appeal Brief in the present application. Therefore, there are apparently no related appeals or interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal.

*(3) Status of Claims*

The statement of the status of the claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 1-6 and 8-12, which have been rejected under § 103 as being obvious over Applicant's admitted prior art (AAPA) in view of Thomas (U.S. Patent No. 3,609,116).

*(4) Status of Amendments After Final*

No amendment after final has been filed.

*(5) Summary of Invention*

The summary of invention contained in the brief is correct.

*(6) Issues*

The appellant's statement of the issues in the brief is correct.

*(7) Grouping of Claims*

As noted by appellant in the brief, the rejected claims stand or fall together based upon the patentability of independent claim 1.

*(8) Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

*(9) Prior Art of Record*

Applicant's Admitted Prior Art (AAPA), disclosed on pages 1-2 of appellant's specification

| | | |
|---|---|---|
| 3,609,116 | Thomas et al. | 09-1971 |

*(10) Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**Claims 1-6 and 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (AAPA) in view of Thomas et al. (U.S. Patent No. 3,609,116).**

*Claim 1:* AAPA is found on pages 1-2 of the specification, and is reproduced below, with the portions thereof which correspond to specific limitations in claim 1 being identified in parentheses:

> A method of producing structures to high accuracy requirements is known, and can be used with sub-structures ("providing a sub-structure") made of either metal or CFRP. In this method, the surfaces of sub-structure to which panels are to be attached are coated with a filled, two component liquid adhesive material, with aluminum added to it ("positioning shim material on at least part of the sub-structure"). The liquid adhesive is cured on the sub-structure ("curing the shim material on the sub-structure"), and is then machined to a desired thickness ("machining the cured shim material to a desired thickness") before the panels or

skins are fixed to the sub-structure ("assembling an outer layer with the sub-structure such that the machined shim material lies substantially between the outer layer and the sub-structure").

Therefore, AAPA fails to disclose only the limitation "said shim material comprising one of a film and sheet of preformed shim material."

Thomas teaches a machinable, cured-in-place shim material useful for aircraft structures. The most descriptive disclosure of the shim material is outlined in column 7, as set forth below:

*lines 22-26:* the shim material is intended for use "particularly in the aircraft industry" and provides "good adhesion to aluminum, steel or titanium in lap joints"

*line 27:* the shim material may be applied "up to 0.125 inch thick" (note that 0.125 inch = 3.175 mm)

*lines 28-29:* the shim material "can be cured at room temperature (75° F) or at elevated temperatures"

*lines 33-38:* uncured, "the shim material is similar to caulking compound and...may be applied prior to the mating of the parts" and "[t]he shim material may also be pressed or calendered into strips and applied in strip form prior to mating of the parts" (emphasis added)

*lines 39-43:* the shim material, "when fully cured in place...may be considered a structural member...and may be machined"

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the shim material of Thomas, preformed into strips and applied in

strip form prior to mating of the parts, for the shim material of AAPA, to facilitate handling thereof and to simplify application of the shim material to the sub-structure. The strips of Thomas are considered to meet the structural limitations of a "film" or "sheet" as recited in claim 1 (particularly since the disclosed shim thickness of Thomas of up to 0.125 inch (3.175mm) falls within the thickness range recited in dependent claim 9).

*Claim 2:* As noted in column 7 (lines 28-29) of Thomas, the shim material may be cured at 75° F, which is below 80° F.

*Claims 3 and 4:* AAPA and/or Thomas fail to explicitly teach curing the shim material by exposure to ultra violet light or radio frequency radiation. However, the manner in which the shim material is cured is deemed to have been an obvious matter of choice, since applicant has not disclosed that the particular curing process solves any stated problem, and it appears that a simple room temperature or elevated temperature cure of the type taught by Thomas would provide equivalent results. Additionally/alternatively, the examiner takes Official Notice that room temperature curing, elevated temperature curing, and curing by exposure to ultraviolet light or radio frequency radiation are notoriously old and well-known in the art, and the selection between either method is deemed to have been an obvious matter of choice. (Further, it is noted that appellant's only disclosure of these latter two curing methods is found on page 3, lines 26-27: "Curing may be effected by exposure of the shim material to ultra violet light or radio frequency radiation." No importance or criticality to these curing methods is stressed, which lends credence to the examiner's contention that these curing methods are well known, and the selection of either is obvious and well within the level of ordinary skill in the art.)

*Claim 5:* This claim recites "wherein the outer layer comprises at least two parts and the thickness of each outer layer part is measured prior to machining the shim material." Applicant's Figure 2 (denoted as PRIOR ART) depicts an outer layer comprising at least two parts **4** and **8**. Although there is no explicit disclosure that "the thickness of each outer layer part is measured prior to machining the shim material," it is considered inherently obvious that one of ordinary skill in the art would need to measure the thicknesses of each of the outer layer parts to make an exact determination of how much shim material needs to be machined away "so that, when the panels are fixed to it there is substantially no step between adjacent panels or skins" (AAPA, page 2, lines 5-7, and reproduced above). The only other alternative, a "trial-and-error" type of machining (e.g. rough positioning of the parts, then removal of the parts, then machining, then rough positioning again, then removal of the parts, then re-machining, etc., until the parts are properly fit) would not be a viable option in the aircraft industry, which requires very close tolerances.

*Claim 6:* On page 2 of AAPA, it is disclosed "The cured adhesive [i.e. the shim material] may be machined to different thicknesses at different locations on the sub-structure so that, when the panels or skins are fixed to it there is substantially no step between adjacent panels or skins." This is almost exactly the same wording used in claim 6.

*Claim 8:* It is noted that Thomas teaches, in column 7 (lines 36-38), that the shim material may be "pressed or calendered into strips and applied in strip form." However, there is no disclosure of pre-cutting the shim material into a suitable shape for use in a particular application. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made

to have cut the strips of Thomas to a desired size as necessary, such that the cut strips could be custom sized for use with sub-structures and outer layers of a particular size and configuration.

*Claim 9:* As disclosed in column 7 (line 27) of Thomas, the shim material may be "up to 0.125 inch thick" (note that 0.125 inch = 3.175 mm), which falls within the thickness range claimed.

*Claims 10-12:* Thomas discloses in column 2 (lines 10-14) that the shim material may be positioned "in either horizontal, vertical or overhead positions without excess flow."

***(11) Response to Argument***

In the section entitled "**2. Discussion of the Rejections**", appellant states "the Examiner contends that the sequence of appellant's claimed steps is taught by the Thomas reference." This statement is incorrect, and is a primary argument of appellant throughout the brief. The examiner does not contend that Thomas teaches the claimed sequence of steps. As set forth in the above rejection (which is simply a more outlined version of the final rejection mailed February 20, 2003 (Paper No. 11)), *AAPA* teaches the claimed sequence of steps, while *Thomas* teaches a shim material that can be either a viscous caulking-type liquid compound (col. 2, lines 54-56, and col. 7, lines 33-6), or a pressed pre-formed strip (col. 7, lines 36-38).

In part (a) of the section entitled "**3. The Errors in the Final Rejection**", appellant presents the following two arguments, which are accompanied by the examiner's responses:

(1) *Thomas teaches away from the sequence of curing and machining prior to assembly.* As mentioned above, Thomas has not been relied upon to teach the specific sequence of steps recited by appellant. *AAPA* teaches the specific sequence, as outlined above in the rejection. Further, there is no convincing evidence that the shim material in the form of preformed strips cannot be used in the sequence taught by AAPA. To the contrary, based on the

disclosure of Thomas that the preformed shim material may be applied prior to mating of the parts (col. 7, lines 36-38 of Thomas), the preformed shim material is applied in an uncured state and subsequently cured (col. 7, lines 33-41 of Thomas), and the preformed shim material may be machined after curing (col. 7, lines 41-43 of Thomas), it appears that the shim material of Thomas would be a very appropriate substitute for the shim material used in the sequence of steps of AAPA.

(2) *There is no suggestion to substitute the shim material of Thomas for the shim material of AAPA.* The examiner disagrees. In column 7 (lines 33-38), Thomas discloses that the shim material may take either of two forms: a thick, caulking-type liquid or preformed strips. The liquid form of shim material disclosed by Thomas is considered to be at least similar to the type used in AAPA. Thomas suggests an *alternative* to the liquid form, i.e. the pre-formed strips. This is an *explicit* suggestion to substitute a preformed shim material for the liquid shim material of AAPA.

In part (b) of the section entitled "**3. The Errors in the Final Rejection**", appellant argues that AAPA does not teach a film or sheet of shim material. The examiner agrees. AAPA has been cited to show that the *sequence* of steps is well known, and does not teach a film or sheet of shim material.

In part (c) of the section entitled "**3. The Errors in the Final Rejection**", appellant argues that there is no suggestion to combine Thomas with AAPA. As set forth above, Thomas suggests an *alternative* to the liquid form, i.e. the pre-formed strips. This is an *explicit* suggestion to substitute a preformed shim material for the liquid shim material of AAPA. The motivation for the substitution appears clear: to facilitate handling of the shim material and to simplify

application of the shim material to the sub-structure. This motivation is clearly set forth in the above rejection.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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Primary Examiner
Art Unit 3726

dpb
February 5, 2004

Conferees:
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